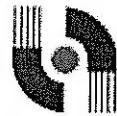


MULTIMEDIA



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FINAL EXAMINATION

TRIMESTER 2, 2018/2019

TRS2251 – ROUTING AND SWITCHING (All sections / Groups)

12 MARCH 2019
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages with 5 questions only.
2. Attempt **ALL FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the answer booklet provided.

QUESTION 1

A research institution is granted the block of IP address 161.18.0.0/16 to subnet (provide the IP addressing for its network). The network has the following addressing requirements:

- The Admin Office LAN will require 12 host IP addresses.
- The Lab 1 LAN will require 15 host IP addresses.
- The Lab 2 LAN will require 15 host IP addresses.
- The Library LAN will require 35 host IP addresses.
- The link from Library to Admin Office LAN will require an IP address for each end of the link.
- The link from Library to Lab 1 LAN will require an IP address for each end of the link.
- The link from Library to Lab 2 LAN will require an IP address for each end of the link.

Determine the following using **Classless Subnetting** approach:

- Default subnet mask: _____
- Custom subnet mask: _____
- Total number of subnets: _____
- Total number of host addresses per subnet: _____
- Number of usable addresses is per subnet: _____
- Give subnet network address, first usable host, last usable host and broadcast address of first **FIVE** subnets. Draw a table as shown below to give your answers.

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
1				
2				
3				
4				
5				

[1 + 1+1+1 +1+ 5 =10 marks]

Continued

QUESTION 2

- a) Describe **THREE** differences between distance vector and link-state routing protocols.
- b) A router refers to its routing table when making best path decisions. How does a router determine the best path if the destination IP address of the packet belongs to a device on a network that is
 - i. directly connected
 - ii. a remote network,
 - iii. not in a connected or a remote network
- c) Describe **FOUR** methods to overcome Routing Loop problem.

[3 + 3 + 4 = 10 marks]

QUESTION 3

- a) What is the purpose of a default gateway?
- b) Why would DNS lookup be disabled when configuring a router or switch in a lab environment?
- c) What happens if a routing table has two or more paths with identical metrics to the same destination network?
- d) Briefly explain with example, **FOUR** types of Virtual Local Area Network (VLAN).

[2 + 2 + 2 + 4 = 10 marks]

QUESTION 4

- a) Assume that there are no inputs devices like a monitor, a keyboard, or a mouse for a router. Describe **THREE** methods that an administrator can use to communicate with the router.
- b) Briefly describe **THREE** types of routing approach to configure a router.
- c) Describe Cisco router boot sequence.

[3 + 3 + 4 = 10 marks]

Continued

QUESTION 5

- a) What are the **TWO** types of frame-tagging methods used for inter-switch VLAN communication?
- b) Briefly describe the concepts of administrative distance.
- c) The Cisco Router show commands can be used to examine information about a router and its configuration. Explain the purpose of the following commands.
 - i. Router#show flash
 - ii. Router#show arp
 - iii. Router#show protocols
 - iv. Router#show ip interface brief
- d) What is InterVLAN Routing? Explain your answer with examples.
- e) Where should place in network if it is a:
 - i. Standard Access Control List (ACL)
 - ii. Extended Access Control List (ACL)

[2 + 2 + 2 + 2 + 2 = 10 marks]

End of Paper